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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/721,574

11/25/2003

Sean Ziao-an Zhang

5649-2239

5789

20792 7590 08/18/2008  
MYERS BIGEL SIBLEY & SAJOVEC  
PO BOX 37428  
RALEIGH, NC 27627

EXAMINER

HALEY, JOSEPH R

ART UNIT

PAPER NUMBER

2627

MAIL DATE

DELIVERY MODE

08/18/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/721,574	<b>Applicant(s)</b> ZHANG ET AL.	
	<b>Examiner</b> JOSEPH HALEY	<b>Art Unit</b> 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 April 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 10-13 and 16-20 is/are rejected.
- 7) ☒ Claim(s) 7-9 and 14-15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Objections***

Claim 13 is objected to because of the following informalities: The limitation “the photodiode detector layer” should be --detector layer--. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 are rejected under 35 U.S.C. 102(b) as being anticipated by Gemma et al. (US 6125095).

In regard to claims 1, and 16 Gemma et al. teaches an information-storage medium that can be locally and reversibly switched between at least two optical states by application of electrical fields (figs. 3 and 4 and column 3 lines 1-7); and an information-storage-layer-optical-state detection means that detects and reports the optical states of regions of the information-storage medium (fig. 7 element 35).

In regard to claim 2, Gemma et al. teaches a detector layer within the information-storage medium that responds differently to an interrogating signal depending on the optical state of the information-storage medium (element 3); and a read/write device that applies the interrogating signal to regions of the information-

storage medium and generates a reporting signal based on a response of the detector layer (element 32).

In regard to claim 6, Gemma et al. teaches an information-storage medium that includes an information-storage layer that can be locally and reversibly switched between at least two optical states by application of electrical fields (figs. 3 and 4 and column 3 lines 1-7); a detector layer within the information-storage medium that can detect whether or not an applied electromagnetic radiation beam is transmitted through the information-storage medium at different positions of the information-storage medium (fig. 4 element 4); and a read/write device that applies electrical fields to write information into the information-storage layer and that applies electromagnetic-radiation beams in order to read information stored in the information-storage layer (fig. 7 element 35).

In regard to claim 12, Gemma et al. teaches a method for storing a bit of information, the method comprising providing an optoelectronic memory device that includes an information-storage medium with an information-storage layer that can be locally and reversibly switched between at least two optical states by application of electrical fields and that includes a detector layer within the information-storage medium that can detect whether or not an applied electromagnetic radiation beam is transmitted through the information-storage medium at different positions of the information-storage medium (figs. 3 and 4 and column 3 lines 1-7); when the bit of information has a first binary value, applying an electrical field of a first polarity to a small region of the first, information-storage layer to induce the first optical state within that region (fig. 4); and

when the bit of information has a second binary value, an electrical field of a second polarity to the small region of the first, information-storage layer to induce the second optical state within that region (column 29 lines 9-13. By erasing the data with the opposite polarity, Gemma et al. creates the opposite data bit).

In regard to claim 17, Gemma et al. teaches a detector layer within the information-storage medium that responds differently to an interrogating signal depending on the optical state of the information-storage medium (fig. 4 element 4); and a read/write device that applies the interrogating signal to regions of the information-storage medium and generates a reporting signal based on a response of the detector layer (fig. 7 element 35).

In regard to claims 3 and 18, Gemma et al. teaches wherein the detector layer responds to an electromagnetic-radiation-based interrogation signal that is transmitted through the information-storage medium, when the information-storage medium is in a first optical state, and that is not transmitted through the information-storage medium, when the information-storage medium is in a second optical state (column 10 lines 42-65. Gemma et al. teaches the detector layer becoming luminescent when absorbing the interrogation signal for the 0 data bit and passing through the interrogation signal when there is a 1 data bit).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 5, 10, 11, 13, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gemma et al. further considered with Gibson et al. (US 6970413).

In regard to claims 4, 5, 13, 19 and 20 Gemma et al. teaches all the elements of claim 4 except wherein the detector layer responds to an electromagnetic-radiation-based interrogation signal that is transmitted through the information-storage medium by generating an electric current .

Gibson et al. teaches wherein the detector layer responds to an electromagnetic-radiation-based interrogation signal that is transmitted through the information-storage medium by generating an electric current (column 8 lines 17-22).

The two are analogous art because they both deal with the same field of invention of recording on an information media.

At the time of invention it would have been obvious to one of ordinary skill in the art to provide the apparatus of Gemma et al. with the electric currents of Gibson et al. The rationale is as follows: the time of invention it would have been obvious to provide the apparatus of Gemma et al. with the electric currents of Gibson et al. because it would create a large data signal.

In regard to claim 10, Gemma et al. teaches a first, information-storage layer comprising a two-dimensional optical state-change organic-polymer film that can be locally, stably, and reversibly switched between a first optical state that absorbs or reflects electromagnetic radiation of a particular frequency and a second optical state that is transparent to electromagnetic radiation of the particular frequency (fig. 6

element 3); a second, electrode layer that is transparent to electromagnetic radiation of the particular frequency (element 5) but does not teach a photodiode detector layer that, when illuminated by electromagnetic radiation of the particular frequency, generates a current.

Gibson et al. teaches a photodiode detector layer that, when illuminated by electromagnetic radiation of the particular frequency, generates a current.

In regard to claim 11, see claims 4, 5, 13, 19 and 20 rejection above.

### ***Allowable Subject Matter***

Claims 7-9 and 14-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSEPH HALEY whose telephone number is (571)272-0574. The examiner can normally be reached on M-F 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Feild can be reached on 571-272-4090. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Joseph H. Feild/  
Supervisory Patent Examiner, Art  
Unit 2627

/Joseph Haley/  
Examiner, Art Unit 2627